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STATISTICAL REPORT

ON THE

EDINBURGH EPIDEMIC FEVER OF 1843-44.

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In the first part of this analysis the circumstances of the patients and the *general features* of the fever were investigated. The *special* symptoms of the malady have next to be considered. By the *special symptoms* are meant those derangements of the functions, and those minor morbid phenomena, which are appreciable during life, and which differ from what have been styled the *general features* of the fever, in so far as they directly indicate disorder of individual functions and conditions of the body in the state of health.

We propose to consider these *special symptoms* in connexion with the several great systems, as a much more distinct view of their individual importance will be thereby afforded. In carrying out this plan there has been some difficulty, as it was not always easy to determine under what head particular symptoms ought to be arranged. We do not believe, however, that in any instance the usual physiological arrangement followed by pathologists has been materially interfered with.

SYMPTOMS REFERABLE TO THE MORBID STATES OF THE NERVOUS SYSTEM.

The Countenance.—The appearance of the countenance varied with the stage of the disease, and also with the occurrence of the various accidental or secondary accompaniments of the attack. The face was flushed early in the attack, with a febrile and in some cases an excited expression, and suffused eyes. In many cases, more especially at an advanced stage, an expression of languor and depression supervened. An appreciable difference existed between the appearance of the countenance in this disease and that in our more usual epidemic typhus. We would define the difference to consist rather in the *absence* of certain characters, than in the *presence* of any well-marked or uniform appearance of the countenance in our cases. In the cases of the epidemic I am specially considering, the florid and more brilliant hue predominated; while in typhus the aspect is generally more dingy, with a greater or less degree of a purple hue. This distinction, however, is not to be received as absolute and invariable. Again, in our late epidemic, the countenance did not present that oppressed, unintelligent, and at times besotted appearance, which is so frequent even in the early stage of the milder cases of typhus.

General Uneasiness.—This condition was invariably complained of in every stage, and always marked the attack of the disease.

The Muscular Force was reported to be more or less enfeebled in every case. The debility was not very remarkable during the pyrexial stages, and in some cases was quite insignificant. Absolute prostration of strength was scarcely observed except in a few fatal cases, and occasionally about the time of a crisis.

Headache.—No case altogether escaped without the occurrence of headache. The invasion was almost invariably reported to have been attended by this symptom. In many cases it was of no great severity, and lasted a short time only; but in the majority of the cases it proved troublesome throughout the febrile paroxysms.

Sleep was in most cases disturbed during the continuance of fever, in many instances to a very slight extent. Restlessness and entire sleeplessness were not frequent, though a disturbed, dreaming, slumbering state was not uncommon. About the period of commencing convalescence want of sleep was a frequent complaint, probably owing to the disturbance induced by the pains which were so characteristic of this fever. At this stage opiates rarely failed to procure sleep, which was followed by a very marked improvement in the general comfort of the patient.

Deafness.—Only 12 of the (220) cases presented this symptom as an accompaniment of the attack. In 8 of these 12, it was very slight, and did not continue for more than one or two days. In 4 cases the deafness was more decided, and lasted upwards of four, and in one upwards of ten days. Of these 4 cases, 3 were tedious in their progress, presenting repeated *relapses*, and the deafness supervened at an advanced stage—presenting more the appearance of a *sequela* than of a concomitant symptom. In the 4th the deafness occurred early in the attack, and was accompanied by severe headache.

Tremor, Subsultus, &c.—Tremor was not met with except along with dissipated habits. Subsultus tendinum was observed only in two of the uncomplicated cases, and was very slight in these two. In other cases, which there was reason to believe were complicated, subsultus and even picking the bedclothes were observed. No authentic case of convulsions occurred, although a confused account was given by the nurse of a fit with which a boy was affected. Retention of urine did not exist in any case. Involuntary evacuations occurred in not more than six cases, all of which were fatal; and in some of these the discharges were owing rather to the extremely lax state of the bowels, than to any degree of insensibility.

The Mental State.—In the majority of the cases delirium was altogether wanting; in consequence of which we were enabled to obtain much more precise information as to the history and state of the patient, than in some other fevers. Many cases presented, especially at night, a slight degree of excitement occasionally with wandering and talkativeness—the intelligence remaining distinct; slight confusion did, however, at times exist in these cases. The crises were frequently accompanied by a mental languor which generally corresponded with the degree of physical prostration.* A slight degree of excitement was occasionally observed with the crises. Leaving out of consideration these cases, in which the mental disturbance was not such as to attract special notice, 18 of our 220 patients presented a notable degree of—

Delirium, that is, about 8 per cent.

The sex of these 18 cases with delirium, was—male in 14 instances; female in 4. The age was noted in 17 of these cases, and was as follows:—

No. of the Cases.	Their Age.	The proportion per cent.
3	were under 20,	which gives 4
9	... above 20, but under 50,	... 8
5	... ... 50, ...	... 18 (nearly).

The habits in these 18 cases with delirium, were intemperate in 6 instances—that is, delirium occurred with a frequency of

* See Phenomena of the first Crisis.

22 per cent. in intemperate subjects. The delirium in most of these cases was of an excited character, two having well-marked delirium tremens. In one the disease became typhoid, with muttering and insensibility.

The delirium appeared at times to depend upon other causes. In one man it was connected with disease of the brain, which proved rapidly fatal. In another it lasted only while the patient continued under the influence of large and repeated doses of opium, which it was thought necessary to administer. In the remaining 10 cases, no such accidental cause of delirium was ascertained to exist; we are therefore constrained to conclude that it was in these more directly connected with the attack of fever; in other words, that there is a liability to the occurrence of delirium even in the simple cases of the fever, but in this small proportion; that is, about 5 per cent.

The mortality amongst the cases with delirium was in the proportion of 27 per cent., 5 having proved fatal. These were all male; 3 of them were above 60, and 2 were between 30 and 40; 2 were intemperate. One died from softening of the brain.

Regarding the character of the delirium, it may be stated that a low restless muttering, with obscured intelligence and sensibility, occurred in 3 cases;* restless, wandering delirium, quickly succeeded by coma, existed in one;† and delirium tremens in 2. With the exception of one of the cases of delirium tremens, all of the six preceding cases proved fatal. In 3 cases which recovered, the delirium was more or less noisy, with disposition to rise from bed, mental wandering, and confusion. These 9 cases may be classed together, representing the cases of more decided or active delirium. In the 9 cases which remain, the delirium was characterized by a less degree of restlessness, and the intelligence was more distinct. The 4 female cases were amongst this number.

THE SYMPTOMS REFERABLE TO THE MORBID STATES OF THE CIRCULATION.

The Force of the Pulse was less than natural, from an early stage; stimuli were not, however, used, except in the last stage of some of the very worst cases. *Irregularity* of the pulse scarcely existed, and only towards the close of some fatal cases.

The Frequency of the Pulse.—The number of cases in which the pulse never exceeded 100 was small. It exceeded

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* In one of these there was reason to suspect disease of the brain, but no opportunity of verifying this was afforded.

† This case presented softening of the brain.

120 in rather less than half of the cases—viz. in 105. In 20 of these 105 cases, the pulse exceeded 140 in the minute; in 29, it was above 130 but under 140; and in 56, above 120 but under 130.

The sex of these was male in 53, female in 52.

The following tabular statement expresses the number per cent. of the cases in which the pulse acquired the above rates of frequency in the different periods of life. The fourth division of the statement expresses the proportion per cent. for these different periods of life of all the cases in which the pulse exceeded 120. The fifth division expresses the proportion per cent. for these different periods of life of those cases in which the pulse exceeded 130 in the minute. The first column expresses the frequency of the pulse; the second, the age of the patient; the third, the number per cent. which presented these several rates of frequency.

Rate of Pulse.	Age.	No. per cent.
1st, Above 120, under 130.	Under 10.	22.
Do.	Above 10, under 40.	19.
Do.	Above 40.	27.
2d, Above 130, under 140.	Under 10.	22.
Do.	Above 10, under 40.	12.
Do.	Above 40.	14.
3d, Above 140.	Under 10.	22.
Do.	Above 10, under 40.	8.
Do.	Above 40.	6.
4th, Above 120.	Under 10.	66.
Do.	Above 10, under 40.	46·9.
Do.	Above 40.	47.
5th, Above 130.	Under 10.	44.
Do.	Above 10, under 40.	20.
Do.	Above 40.	25.

From all these calculations, except the first, it appears that the high rates of the pulse are much more frequent in the earlier than in the later periods of life. This difference is decided in regard to all these rates of frequency, but most especially in the highest, as demonstrated in the second, third, and fifth calculations; and the fourth calculation fully counterbalances the apparent contradiction which the first presents to this conclusion. There appears to exist no difference in regard to the frequency with which the high rates of the pulse occur, between what is here termed the middle and late periods of life; but the number of cases, on which the calculations are founded, is rather limited to enable us to institute a just comparison between these.

The length of time which these rates of frequency of the pulse endured has been noted in 84 cases. In 62 of these, the pulse

fell within twenty-four hours; that is, from 120, in 32 cases; from 130, in 16 cases; and from 140, in 14 cases. The high rate of pulse does not of itself indicate danger; one-third only of the deaths occurred amongst these 105 cases; and none of them occurred in cases which presented the pulse above 140. 28 of the complicated cases were of the number with the high rate of pulse.

Temperature.—This was in every instance elevated during the febrile paroxysm. In the few cases in which the thermometer was used, it was found in some cases as low as 99°, and in no case higher than 102°.

SYMPTOMS REFERABLE TO THE MORBID STATE OF THE DIGESTIVE ORGANS.

The following report on the state of this system is less strictly "numerical" than the term "statistical" demands; but in many instances this is of little importance, as no practical inference of any value would have been conveyed by such details; and wherever it is of real importance, we have endeavoured to express in numbers the value of the indications.

Epigastric Tenderness.—This was probably connected with the stomach, and therefore we take it into consideration in this place. It was an invariable accompaniment of the attack, occurring along with the earliest symptoms, and rarely disappearing till after the crisis; it again occurred with the relapse. The degree of pain varied from the most trivial tenderness to the most acute pain, causing much uneasiness, and frequently interrupting free respiration. It was most generally limited to the epigastric region, but at times extended to the hypochondriac, more especially the right. In other regions of the abdomen tenderness was not observed, except in connexion with some secondary or accidental cause.

Thirst was an invariable and an early source of complaint, and rarely yielded till after the crisis.

The State of the Tongue.—This has not been investigated minutely, with reference to the stages of the attack. In 200 of the cases, it was more or less dry in 81; and in the remaining 119 it was moist throughout the attack.

Of these (119) cases, the morbid condition was very trifling in 74, consisting in most of these of a thin film of gray mucus; the organ not unfrequently, however, presented a red tip, and occasionally a red streak. In a few mild cases, the tongue remained almost natural throughout the attack, and in a small number it was red and glazed, though moist. In the remaining 45 cases, of the 119 with moist tongue, the organ was *coated with a fur* varying in its thickness, appearance, and in the stage of the disease at which it presented itself. In some cases it was confined to the central part of the tongue, in the form of an ash-

coloured or brown streak. In other cases it was diffused over the whole surface of the organ, *first*, in the form of a uniform gray fur; *secondly*, of an ash-coloured fur, increasing and deepening in colour towards the centre; *thirdly*, of a thick brown fur; and, *fourthly*, in a few cases the tongue presented a thick bright yellow fur.

In the 81 cases presenting the *dry tongue*, the dryness was limited to a central streak in 28 cases; the whole surface was dry, but without crust, in 30; and in 23, the tongue was dry and brown,—in some of these being *thickly crusted*. A marked difference was observed in the frequency of the deaths, jaundice, and delirium, in the cases with the "tongue *partially* dry," and those in which its surface was *quite* dry, with or without crust. In the former cases, death and jaundice were met with, each with the frequency of 7 per cent.; delirium rather less than 4 per cent. In the latter cases, death occurred in 16 per cent., jaundice in 18 per cent., and delirium in 13 per cent.

Of the complicated cases, 41 in number, 33 presented the "dry tongue."

Vomiting so frequently existed, at one stage or other of the disease, that it has been believed to be closely connected with this form of fever. It was very generally associated with the epigastric tenderness, though the degree of the latter was not always the greatest when vomiting was most urgent.

The vomiting was met with at every stage of the febrile paroxysm; but its existence with the accession of the disease was the most remarkable, from its frequency,—its severity,—its suddenness of attack, and the *early date* of its occurrence. The mildness of the case did not afford any protection against it. Few cases were admitted till the urgency of this symptom had abated, which it generally did on the second or third day; the tenderness of the epigastrium, however, often continued in an increased degree. Recurrence of the vomiting throughout the attack occurred in a small number of cases, giving rise to a considerable degree of exhaustion, but to serious prostration only at an advanced stage, and in cases where some local complication existed.

The matters vomited were in a very remarkable degree tinged with the bile from the very first. The ingesta constituted the chief part of the matters vomited, but most distressing retching often continued after the stomach had been emptied. Dr Cormack, in his description of the matters vomited, has adopted the formidable name, "Black Vomit." I cannot tax myself with having overlooked such an important circumstance, as this vomit must have been, in the progress of any of my cases, and I cannot discover that such a description of the matters vomited is entered in the reports of any of them, except in some of those presenting the most severe forms of the dysenteric complication, and in one case in which peritonitis succeeded

the attack of fever. This is not sufficient to prove that this peculiar fluid may not be vomited in uncomplicated cases of the fever; but its occurrence must be so rare as by no means to justify us in concluding that it is a characteristic symptom even of the severe cases. But if its occurrence were more frequent, the name is most objectionable, as implying a similarity between this form of fever and the yellow fever, which facts do not substantiate.

The State of the Bowels.—The bowels were almost invariably somewhat constipated. An easy state of the bowels was maintained by the use of mild purgatives; cathartic doses were occasionally required, and the cases stood their action well. Diarrhœa occurred in a certain proportion of the cases, generally at a late stage, and apparently connected with a lesion analogous to that met with in cases of dysentery. This lesion will be considered under the complications.

Minute reports have not been kept of the state of the alvine evacuations. They appeared mostly to have been dark-coloured; in some of the worst of the complicated cases, a dark grumous fluid discharge was observed; and in these cases blood and mucus at times in considerable quantity were mingled with the evacuations.

Jaundice.—The frequency with which jaundice accompanied this fever led to much misapprehension of the relation which it bore to the disease; but its frequency appears to have been altogether exaggerated. Only 29 of our 220 cases presented this condition. These cases with jaundice we shall consider,—1*st*, According to the degree of its intensity; 2*d*, According to the stage of the attack in which it existed; and, 3*d*, We shall consider those cases in which the jaundice was co-existent with a crisis, as distinguished from those in which it occurred during the development of the febrile state.

1*st*, According to the degree of its intensity, the jaundice may be considered under three heads:—*First*, The intense bright jaundice, which existed in 11 of the cases; and in these the jaundice occurred during the development of febrile symptoms, and chiefly in the primary attack. *Second*, A less intense, though complete jaundice, which existed in 9 of the 29 cases, and occurred during the development of febrile symptoms in 4, and was concurrent with a crisis in 4 cases,—the notes of one case are imperfect. *Third*, A faint jaundice, amounting to mere dinginess of the skin, the sclerotic coat of the eye being the chief seat of colour. This degree of jaundice also existed in 9 cases, and occurred during the development of febrile symptoms in 4 cases, and concurrent with a crisis in 5.

2*d*, The stage of the disease in which the jaundice occurred was as follows:—In 16 cases it occurred in the primary attack

alone; of these 16 cases 2 presented the jaundice on the fourth day—none were affected earlier than this. In 10 cases the jaundice occurred in the relapse alone. In 2 cases the jaundice occurred in both the primary attack and the relapse. In one case the particulars could not be ascertained.

3d, The jaundice was concurrent with a crisis in 9 cases—viz. with the first crisis in 5, and with the second in 4; these 9 cases presented either the second or the third degree of the jaundice. In 18 cases the jaundice occurred during the development of the febrile symptoms—viz. in 11 cases in the primary attack, in 5 in the relapse, and in 2 in both.

Vomiting was not more frequent or troublesome in the cases with jaundice than in the ordinary cases. The evacuations, when noticed, are reported to have been of a dark colour. Delirium was associated with the jaundice in 6 cases; 3 of these presented one of the more strongly marked or active forms of delirium; in 5 of them the jaundice occurred during the development of febrile symptoms; in 4 the complete jaundice existed; in 2 death occurred, both presenting the most intense degree of jaundice and the muttering delirium. The dysenteric complication occurred in 6 cases which had presented jaundice; two of these proved fatal.

Of the 29 cases with jaundice there were 4 fatal; 3 of these presented the complete jaundice, and 1 the jaundice in the third degree. Death, in the last case and in one of the first three, was caused by the dysenteric complication, and occurred after the date of the second crisis. In one only of these 29 cases was the patient made out to have been the subject of a former attack of jaundice; he presented the first degree, and a slighter return in the relapse; he had no enlargement of the liver nor unusual pain. Pain and tenderness, in addition to the usual degree, and requiring the local abstraction of blood, existed in 6 of the 29 cases, and in 4 of these the liver was very perceptibly enlarged.

Our cases do not furnish sufficiently extensive or precise returns on the state of the spleen; we therefore abstain from making any remarks as to the condition of this organ.

Symptoms referable to the Morbid States of the Respiratory System.—The derangements in the functions of these organs are mostly referable to the accidental complications; and will be best considered when we come to this division of the subject.

From an early stage of the attack, there was, especially in the more acute cases, a greater or less degree of hurry in the respiration, in some cases being as frequent as 50 in the minute, without any affection of the lungs. Occasionally, the respiratory acts were impeded by stitches of the sides, also by catching connected with the epigastric pain.

SYMPTOMS REFERABLE TO THE MORBID STATES OF THE SKIN.

The state of the skin was important, in so far as it afforded the critical discharge which formed such a marked feature in this fever. The cases on which this report is founded did not afford one well-marked exception to the improvement being preceded by the critical sweat. (*See phenomena of the first crisis.*)

Eruption.—This does not appear to constitute a symptom of any importance in this form of fever.

Petechial Spots and Blotches, from the size of a pin-head to two or three lines in diameter, were met with, but with no great frequency. This eruption appeared to be connected rather with the external circumstances of the patients than with the disease itself, and occurred in persons who were admitted late in the attack, and who had been previously confined in close ill-ventilated houses. In many cases there appeared reason to believe that these spots were connected with flea-bites, though the greater than usual extent of the ecchymoses and the obscurity of the punctum made it difficult to decide this; in some cases, they were undoubtedly spontaneous. No unusual severity nor malignancy of the disease existed in the cases which presented these spots.

Maculæ.—The macular eruption was observed only in one case, although most diligently sought for in all. The particulars of this solitary case were as follows:—The patient was a previously healthy lad of seventeen; the symptoms of the fever were mild. On the 6th day there was observed an eruption of bright rose-coloured maculæ, strictly confined to the extremities, particularly to the buttocks, shoulders, and elbows; the hands, wrists, feet, and ankles in particular being covered by a profuse eruption, which was confluent in these situations, but became gradually and rapidly more rare and scattered away from the extremity of the limbs, and ceased altogether within three or four inches of the joints. The colour of the eruption disappeared under pressure; pulse 100; he had no complaint of pains. On the following day, the eruption had faded on the hands and legs, but was more extensively diffused on the nates and arms, where the rash was now confluent, and in blotches, and of a bright colour. On the back also there were on this day (the 7th) a few scattered spots; pulse 84. On the ninth day of the disease the eruption had faded. The first crisis was not so abrupt and distinct as usual, and the relapse occurred on the sixteenth day. The relapse, with the exception of a slight looseness of the bowels, presented no unusual symptom.

The character of this eruption is different not only from the eruption observed in typhus, but also from that described by

others as occurring in the present disease. The limits of this report prevent me from noticing this subject farther than merely to state, with regard to our patient, that his was not an eruption such as we are led to expect in febrile diseases; and that we may therefore disconnect it altogether from his attack of fever.

Vesiculæ. — Sudamina occurred, but not frequently, and generally about the time of a crisis. They were not observed in more than 12 cases, and did not afford any special indication.

SYMPTOMS REFERABLE TO THE MORBID STATES OF THE UTERINE SYSTEM.

The functions of the uterus have been supposed to be very prone to disorder in this fever. The catamenial discharge occurred in 12 of our 93 female cases. All of these did well; in one, the discharge was excessive; in one, it was suddenly checked after a few hours' continuance; and in one, there was much talkative delirium with excitement.

Abortion.—Only 3 of our female cases were pregnant; of these 2 miscarried. Both patients had previously enjoyed good health; they were about 25 years old, and were above seven months gone in pregnancy. One miscarried in the primary attack, on the fifth day. She subsequently became affected with jaundice and enlargement of the liver; she relapsed on the twelfth day, and ultimately did well; her child lived about twelve hours. The other case miscarried just before the second crisis; she had repeated attacks of uterine action and pain, relieved by large opiates, both in the primary attack and in the relapse; subsequent to her miscarriage she had an attack of diarrhœa, but did well; the fœtus was still-born.

SYMPTOMS REFERABLE TO THE MORBID STATES OF THE URINARY SYSTEM.

It was not until after the publication of Dr Henderson's remarks that my attention was particularly directed to the state of the urine; and I find that the amount of this secretion is reported in only 19 of my cases. In 6 of these, the quantity never varied materially from the natural amount.

In 4 cases, the quantity underwent, at different stages of the attack, both *increase* and *decrease*. It may be well to state here, that there were many difficulties in the way of ascertaining carefully the state of the urine during the febrile paroxysms, and that the returns on this part of the subject must be regarded as very imperfect; but the following facts were ascertained. In the 4 cases at present under consideration, the *diminution* took place in the intermission, the relapse, and the convalescence; and in the same cases, the *increase* occurred in the intermission and convalescence. In one of these cases, the quantity continued much below the healthy standard, till the first day of

convalescence, when the increased secretion commenced. In the 3 remaining cases, the *diminution* was observed in the intermission, in the relapse, and in the beginning of convalescence, the secretion subsequently increasing; and in one of these 3, *increase* occurred also in the intermission.

In 8 cases, the quantity of urine was diminished to a greater or less degree, but did not, at any stage of the attack, exceed the natural quantity. In these 8 cases, the *decrease* was observed during a febrile paroxysm in only two instances. These two cases, added to the 4 cases in which both *increase* and *decrease* occurred, gives 6 as the number of cases in which diminished excretion was observed during a febrile paroxysm. The symptoms, in one only of the cases with diminished secretion, were such as to give rise to the suspicion of the urea circulating with the blood. Neither the pulse nor respiration were affected, but a state of extreme lethargy existed, approaching to stupor. In this case, the analysis of four ounces of blood failed to discover even a trace of urea. The blood was drawn during the intermission, while the lethargy still existed in its greatest degree.

Increased flow was observed in 5 cases, that is, including the 4 which presented both decreased and increased discharge. The increased discharge existed chiefly in the convalescence, and in 2 cases resulted from the use of diuretics.

Hemorrhage.—In 14 only of the cases did hemorrhage occur subsequent to admission. In one, it was from the uterus, was very profuse, and lasted for two days. In the remaining 13 cases, it was from the nose. Many other patients stated that they had had bleeding from the nose previous to admission; but it evidently is impossible to ascertain the frequency of such a symptom, unless the cases come under observation at a much earlier date than occurs in fever hospitals generally.

*** In the First Part, at page 3, the utterly destitute are stated to have been in the proportion of $\frac{1}{6}$th,—*read* 23 or $\frac{1}{8}$th. Of the intemperate 5 are stated to have died—*read* 6.